funkwerk
enterprise communications

MEDIA GATEWAY

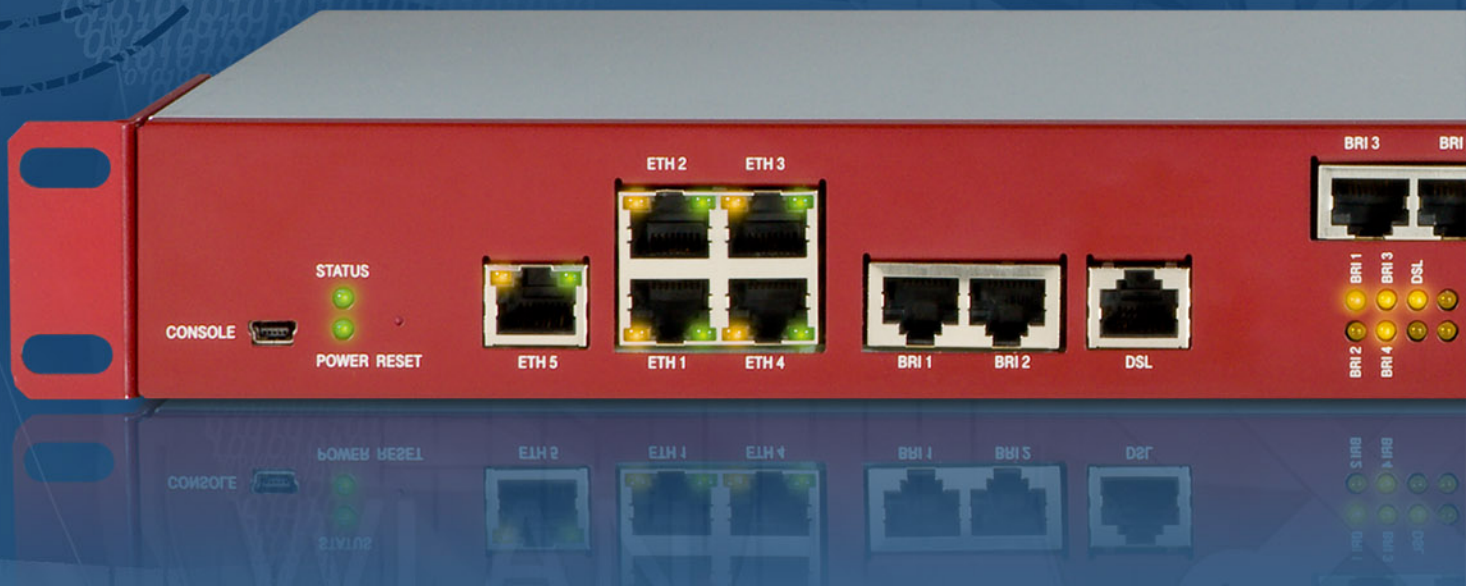
The media gateway with ADSL 2+ modem

bintec RT3002

Fax Media Gateways certified by:
GFIFAXmaker™
servonic Technology Partner
Tobit.Software
TWINFAX
VIPcom Communications
Visendo by ppedv

- 4 * ISDN BRI; 8 DSP channels; ADSL 2+ modem
- VoIP and fax over IP (T.38)
- CAPI server virtualisation + fax G3
- 5 * Gigabit Ethernet
- 19“ housing with integrated power supply
- IPSec – 10 tunnels, opt. up to 110, HW acceleration

VoIP Media Gateways Certified from:
ADDIX
swyx
STARFACE COMFORTPHONING



High-end media and VPN gateway with ADSL 2+ modem

RT3002

The bintec RT3002 is a powerful and, thanks to its comprehensive equipment, flexible media and VPN gateway. The integrated ADSL 2+ modem on the R3002 supports Annex B (ADSL over ISDN), which is predominantly used in Germany, as well as the international Annex A (ADSL over POTS) and its extension Annex M making it suitable for use in many countries. With its 19-inch metal housing and highly efficient internal switched-mode power supply the fan-free and hard drive-free design guarantees long-term reliability in critical corporate applications.
Four configurable BRI interfaces (NT/TE) for the use of up to 8 ISDN B-channels and the integrated 8-channel DSP permit eight simultaneous hybrid voice connections (VoIP) and fax traffic (FoIP).
The device has five Gigabit Ethernet ports, which can be configured for LAN, WAN or DMZ, and comes with a licence for 10 out of a possible 110 hardware-accelerated IPSec tunnels. This makes the RT3002 ideal for use as a media and VPN gateway in SMEs and company head offices.

Remote CAPI

The remote CAPI is multiserver and multiside-capable.
Voice and fax applications can transfer data simultaneously on all eight available channels. Thanks to the dedicated DSP hardware available for each channel, the entire system is not overburdened and the computing power remains available for all routing and VPN tasks. The quality of each fax connection is therefore consistently high, irrespective of the capacity utilisation of the rest of the system.

As the remote CAPI is a network application, which operates independently of the MS Windows© operating system software, it is ideal for server use. Consequently, CAPI applications can be installed and maintained without suspending operation and no reboot of the server is required. The software supports 16/32/64 Bit operating systems and applications. The remote CAPI is also available for Linux.

This function is groundbreaking for the use of virtual machines. MS Hyper-V©, MS virtual PC©, VMware©, virtualBox© and other virtual platforms do not offer an option to connect ISDN cards. The bintec remote CAPI avoids this problem and thereby allows fax and unified communication servers to be operated on virtual systems.

The following partners have already successfully certified our solution:
Servonic (IXI), Tobit (David), COM2 (TWINFAX), GFI (Faxmaker), ppedv(Visendo)

VoIP Media Gateway

With the RT3002 up to 8 telephone calls and fax transmissions (T.38) can be transferred simultaneously between the IP network and the traditional telephone network. This can be carried out either directly as a terminal adapter (an ISDN telephone is registered with the VoIP provider) or using a PBX.
A traditional ISDN PABX can be coupled with SIP providers or a modern IP PABX can be operated on the ISDN BRI/PRI exchange connection. Fax transmission over T.38 is supported in both scenarios. A fax device on the analogue connection of the traditional PABX can thus send and receive faxes over the SIP provider. This allows FoIP clients and servers in the LAN to fax over the ISDN exchange.
The G.711, G.726 and G.729A voice coding offered by the SIP trunking and DDI-capable Funkwerk Media Gateway can be adapted to suit your quality requirements and thereby ensure ISDN quality and high compression. Echoes are successfully suppressed in G.168.
Fax over IP, T.38, permits implementation of the analogue T.30 group 3 fax protocol.
Thanks to the intelligent quality of service bandwidth management and adjustment, you can prioritise voice traffic over normal data traffic over the internet, for example, and thereby always ensure sufficient bandwidth for your IP voice connections.
Pure VoIP calls are not limited and are only restricted in terms of number by the existing bandwidth for the provider.
Media gateways are certified by:

Swyx with its Swyxware communication solution

Addix with its Asterisk Appliance Astimax

Routing and VPN gateway

The additional media services, which the bintec RT Series permits, in no way restrict the standard scope of functions of the bintec R Series. You can use the entire scope of services of the VPN gateway with identical data rates in parallel to media services.
Bintec gateways have features that go far beyond just IP routing and allow it to be seamlessly integrated into complex IT infrastructures.
As routing protocols, you can use RIP, OSPF or the Multicast routing protocol PIM-SM for example, and the comprehensive multicast support makes the device ideal for use in multimedia and streaming applications.
Even the basic equipment provides a SIP application level gateway (ALG) for the direct connection of IP telephones in the network or for registering with a VoIP provider. The ALG automatically controls the internal firewall making it easier to configure your VoIP solution, if the media gateway is not active.
You can prioritise voice traffic over normal data traffic using QoS support. If required you can give normal data traffic priority over e-mail traffic.
The DNS proxy function supports the LAN for address implementation and the automated IP configuration of PCs is carried out over an integrated DHCP server. The time server allows you to send the current time to all computers in the LAN without having to query each computer on the internet.

The VPN IPSec solution works both with preshared keys as well as with certificates for authentication, which allows a public key infrastructure to be created for maximum security.
Furthermore, the bintec IPSec implementation offers support when creating VPN connections with dynamic public IP addresses. The exchange of IP addresses is carried out either over dynamic DNS providers or directly over ISDN.
IKE Config Mode and X-Auth (extended authentication) permit IPSec dialin solutions for multiple clients with minimal costs and one-time password ensuring the highest level of security.
The professional functions are rounded off with bundling for parallel internet connections with load balancing and our bintec Router Redundancy Protocol (BRRP).

VPN gateways are certified by Kobil with "Secure One Time Verification and Identification" (SecOVID) and Starface, amongst others, which realise secure IP PABX connections over VPN with VoVPN.

Simple configuration and maintenance

The gateway is configured over the Funkwerk Configuration Interface (FCI), using the integrated configuration wizards for example. The FCI is a web-based graphic user surface that you can use from any PC with an up-to-date Web browser via an HTTP or encrypted HTTPS connection. It also offers the opportunity to manage the devices locally and remotely over other configuration accesses such as Telnet, SSH and ISDN login.

DIME Manager from Funkwerk Enterprise Communications (FEC) is a free tool for managing FEC devices.
DIME Manager is aimed at administrators who manage networks with up to 50 devices. The software simplifies the management and configuration of gateways or access points either individually or in logical groups.
When developing DIME Manager, simple and efficient operation was the primary aim. It allows, for example, software updates to be applied to individual devices or groups of devices simply by drag and drop. DIME Manager recognises and manages new devices in the network using SNMP multicasts, in other words independent of their current IP address.

Remote CAPI / Fax Media Gateway

Feature	Description
Multiserver CAPI	A computer can use several CAPI server simultaneously
Multisite CAPI	Several computer can use the same BRI port
Access Control	Prevention by user passwort concept
ISDN server virtualising	Unlimited usage on virtual computers
Fax profile	Fax group 3
Number of parallel fax channels	8 fax channels
Maximum data rate	14,400 Baud
Fax standard	Fax protocol T.30
Protocols for fax data transmission	Fax data transmission according V.21, V.27, V.29, V.17
CAPI controller features	CAPI possibilities: Internal controller, supplementary services, DTMF (MFV), HOLD, ECT, 3PTY, CF, CD, MWI
B channel layer 1 protocols	64 kbps HDLC, 64 kbps bit transparent, V.110, T.30 fax G3, 56 kbps bit transparent
B channel layer 2 protocols	ISO 7776 (X.75 SLP), transparent, LAPD D-CH X.25 (SAPI 16), T.30 fax G3, PPP, V.120 asyn., V.120 Bit transparent, LAPD free SAPI
B channel layer 3 protocols	Transparent, T70/90NL, ISO 8208 (X.25 DTE-DTE), X25DCE, T.30 fax G3, T.30 fax G3 extended
Fax data compression standards	T.4 (MH-, MR compression), T.6 (MMR compression)

VoIP Media Gateway

Feature	Description
DSP support	VoIP and FoIP codecs are executed digital signal processors. Computation does not charge the system and is dedicated reserved for each channel. Constant codec quality, independent of system load, is guaranteed.
SIP user	No software limitation
SIP registrar	SIP users are able to sign on at the media gateway with registration and authentication.
SIP proxy	Mapping of an unlimited number of SIP single or DDI provider accounts to SIP single user or to VoIP PABXs.
SIP ISDN gateway	Transparent conversion of connections of a VoIP PABX to ISDN trunk
ISDN SIP gateway	Transparent conversion of ISDN PABX connections to single SIP provider, or to DDI SIP trunk access
SIP trunk	With 'SIP PBX Trunking' respectively SIP DDI Internet telephony has got all essential features of ISDN. Especially Direct Dial In (DDI), which allows to assign single telephone numbers (DDI numbers) to extensions and departments.
ISDN trunk	Support of two or more ISDN connections in point-to-point mode (BRI or PRI), which are configuered as TE (collective line) or NT
SIP link	Switching of incoming and outgoing calls like SIP trunks, though without DDI, but with single calling number blocks, with or without registerin
Call router	Flexible switching of all calls according rules; conditions for call forwarding (routing). List with rules or rule chains for manipulating the signalled target calling number
CLID conversion	Manipulation of calling party numbers in incoming calls; add a prefix to incoming numbers, to route corresponding calls via a certain SIP account.
Calling number transformation	Conversion list of calling numbers; in this list are correlated external and internal numbers.
Backup routes	Unlimited number of backup routes for the automatic selection of outside lines, (e.g. Prio 1 SIP provider is not available, Prio 2 SIP provider returns line busy, call will be switched Prio 3 via ISDN)
Number of simultaneous VoIP	No software limitation
Number of simultaneous hybrid	8 ISDN SIP hybrid connections, independ of applied codecs by DSP HW support
Features hybrid connections	Echo cancellation according G.168, Comfort Noise Generation CNG
DTMF support	Support of DTMF inband and out of band according standards RFC 2976 (SIP info) and RFC 2833 (RTP payload type/outband)
Audio Codec support	G.711, G.726 (16 kbps), G.726 (24 kbps), G.726 (32 kbps), G.726 (40 kbps), G.729
Audio Codec prioritisation	Selectable handshaking sequences, with priorization according quality, low or high bandwidth
Fax transmission	8 channels can be simultaneous converted from LAN fax T.38 to T.30, ISDN an analogue. No matter how high the system load, for each channel is supported by a DSP.
Terminal adapter SIP ISDN	Imaging of ISDN end devices to SIP and imaging of SIP end devices to ISDN, maximum of 8 simultaneous connections
SIP protocols	UDP, TCP, TLS
SIP features	CLIP, CLIR. REFER, PRACK, SESSION timers, HOLD, MOH, INFO, NAPTR, ...
SIP RFCs	2327, 2976, 3261, 3262, 3263, 3264, 3311, 3323, 3325, 3428, 3515, 3581, 3608, 3891, 3966, 4028, 3555, 2833, 1035, 2782, 2915, 2617, ...
SIPS	SIP secure (TLS), establish secure calls
Media protocols	RTP, SRTP
Debug trace	Recording of all data streams via console and web configuration. Selectable trace formats: text PCAP

DSL Interface

Feature	Description
ADSL	ADSL over ISDN (ITU G.992.1 Annex B, ISDN - compatible to U-R2 connection of Deutschen Telekom), G.Lite (ITU G.922.2)
ADSL 2 / ADSL 2+	ADSL over ISDN (ITU G.992.3, ITU G.992.5 Annex B)
ADSL	ADSL over POTS (ITU G.992.1 Annex A G.Lite (ITU G.922.2)
ADSL 2 / ADSL 2+	ADSL over POTS (ITU G.992.3, ITU G.992.5 Annex A)
ADSL 2	ADSL2 over POTS Annex L
ADSL 2	ADSL2 over POTS Annex M
ADSL	Support of Dying Gasp
ATM	Support of layer 1 protocol AAL5 , PVCs, RFC 1483
ATM	Support of up to 7 virtual channels (VC)
ATM	Support of OAM F4/F5 line monitoring
ATM	Support of ATM traffic management (COS - CBR, VBR, UBR)

ISDN Interface

Feature	Description
CAPI	CAPI 2.0 with CAPI user concept (password for CAPI use)
ISDN protocols	Euro-ISDN (Point-to-mulitpoint/Point-to-point)
ISDN auto-configuration	Automatic recognition and configuration of ISDN protocols
ISDN leased lines	Supported leased lines: D64S, D64S2, TS02, D64S2Y
B channel protocols	Excellent interoperability with other manufacturers (Raw HDLC, CISCO HDLC, X.75)
X.31 over CAPI	Support for various connection paths: X.31/A for ISDN D-channel, X.31/A+B for ISDN B-channel, X.25 within ISDN B-channel (also leased lines)
Bit rate adaption	V.110 (1,200 up to 38,400 bps), V.120 up to 57,600 kbps (HSCSD) for connection to GSM subscribers

Security

Feature	Description
NAT/PAT	Symmetric Network and Port Address Translation (NAT/PAT) with randomly generated ports inclusive Multi NAT (1:1 translation of whole networks)
Policy based NAT/PAT	Network and Port Address Translation via different criteria like IP protocols, source/destination IP Address, source/destination port
Policy based NAT/PAT	For incoming and outgoing connections and for each interface variable configurable
Content Filtering	Optional ISS/Cobion Content filter (30 day test license inclusive)
Stateful Inspection Firewall	Packet filtering depending on the direction with controling and interpretation of each single connection status
Packet Filter	Filtering of IP packets according to different criteria like IP protocols, source/destination IP address, source/destination port, TOS/DSCP, layer 2 priority for each interface variable configurable

VPN

Feature	Description
PPTP (PAC/PNS)	Point to Point Tunneling Protocol for establishing fo Virtual Privat Networks, inclusive strong encryption methods with 128 Bit (MPPE) up to 168 Bit (DES/3DES, Blowfish)
PPP / PPTP hardware acceleration	Integrated hardware acceleration for PPP/PTPP encryption algorithms DES, 3DES, MPPE
GRE v.0	Generic Routing Encapsulation V.0 according RFC 2784 for common encapsulation
L2TP	Layer 2 tunnelling protocol inclusive PPP user authentication
Number of VPN tunnels	Inclusive 110 active PPTP, L2TP and GRE v.0 tunnels (also in combination possible)
IPSec	Internet Protocol Security establishing of VPN connections
Number of VPN tunnels	Inclusive 10 active VPN tunnels, optional up to 110 IPSec tunnels
IPSec Algorithms	DES (64 Bit), 3DES (192 Bit), AES (128,192,256 Bit), CAST (128 Bit), Blowfish (128-448 Bit), Twofish (256 Bit); MD-5, SHA-1, RipeMD160, Tiger192 Hashes
IPSec hardware acceleration	Integrated hardware acceleration for IPSec encryption algorithms DES, 3DES, AES inclusive hardware acceleration for MD-5, SHA-1 Hash generation
IPSec IKE	IPSec key exchange via preshared keys or certificates
IPSec IKE Config Mode	IKE Config Mode server enables dynamic assignment of IP addresses from the address pool of the company. IKE Config Mode client enables the router, to get assigned dynamically an IP address.
IPSec IKE XAUTH (Client/Server)	Internet Key Exchange protocol Extended Authenticaion client for login to XAUTH server and XAUTH server for loging of XAUTH clients
IPSec IKE XAUTH (Client/Server)	Inclusive the forwarding to a RADIUS-OTP (One Time Password) server (supported OTP solutions see www.funkwerk-ec.com).
IPSec NAT-T	Support of NAT-Traversal (Nat-T) for the application at VPN lines with NAT
IPSec IPComp	IPSec IPComp data compression for higher data throughput via LZS
IPSec certificates (PKI)	Support of X.509 multi-level certificates compatible to Micrososft and Open SSL CA server; upload of PKCS#7/8/10/12 files via TFTP, HTTP, HTTP, LDAP, file upload and manual via FCI
IPSec SCEP	Certificates management via SCEP (Simple Certificate Enrollment Protocol)
IPSec Certificate Revocation Lists	Support of remote CRLs on a server via LDAP or local CRLs
IPSec Dead Peer Detection (DPD)	Continuous control of IPSec connection
IPSec dynamic IP via ISDN	Transmission of dynamic IP address in ISDN D or B channel; free-of-charge licence necessary
IPSec dynamic DNS	Enables the registering of dynamic IP addresses by a dynamic DNS provider for establishing a IPSec connection.
IPSec RADIUS	Authentication of IPSec connections at a RADIUS server. Additionally the IPSec peers, which were configured on a RADIUS server, can be loaded into the gateway (RADIUS dialout).
IPSec Multi User	Enables the Dial-in of several IPSec clients via a single IPSec peer configuration entry
IPSec QoS	The possibility to operate Quality of Service (traffic shaping) inside of an IPSec tunnel
IPSec NAT	By activating of NAT on an IPSec connection it is possible, to implement several remote locations with identical local IP addess networks in different IP nets for the VPN connection
IPSec throughput (1400)	86 Mbps with 1400 Byte packets with AES 256 / AES 128 / 3 DES encryption
IPSec throughput (256)	19 Mbps with 1400 Byte packets with AES 256 / AES 128 / 3 DES encryption

Routing

Feature	Description
Policy based Routing	Extended routing (Policy Based Routing) depending of diffent criteria like IP protocols (Layer4), source/destination IP address, source/destination port, TOS/DSCP, source/destination interface and destination interface status
Multicast IGMP	Support of Internet Group Management Protocol (IGMP v1, v2, v3) for the simultaneous distribution of IP packets to several stations
Multicast IGMP Proxy	For easy forwarding of multicast packets via dedicated interfaces
Multicast Routing Protocol PIM SM	Protocol Independent Multicast (PIM) distributes information via a central Rendezvous Point Server. PIM Modus Sparse Mode (SM) forwards only packets to groups which have been requested
Multicast inside IPSec tunnel	Enables the transmission of multicast packets via an IPSec tunnel
RIP	Support of RIPv1 and RIPv2, separated configurable for each interface
Extended RIP	Triggerd RIP updates according RFC 2091 and 2453, Poisened Rerverse for a better distribution of the routes; furthermore the possibility to define RIP filters for each interface.
OSPF	Support of the dynamic routing protocol OSPF
BGP4	On request
Routing throughput (1518)	199 Mbps with 1518 Byte packets
Routing throughput (256)	198 Mbps with 256 Byte packets

Protocols / Encapsulations

Feature	Description
PPP/MLPPP	Support of Point to Point Protocol (PPP) for establishing of standard PPP connections, inclusive the Multilink extension MLPPP for the bundeling of several connections
PPPoE (Server/Client)	Point-to-Point Protocol over Ethernet (Client and Server) for establisching of PPP connections via Ethernet/DSL (RFC 2516)
MLPPPoE (Server/Client)	Multilink extension MLPPPoE for bundeling several PPPoE connections (only if both sides support MLPPPoE)
PPPoA	Point to Point Protocol over ATM for establishing of PPP connections via ATM/DSL
IPoA	Enables the easy routing of IP via ATM
DNS	DNS client, DSN server, DNS relay and DNS proxy
DYN DNS	Enables the registering of dynamic assigned IP addresses at adynamic DNS provider, e.g. for establishing of VPN connections
DNS Forwarding	Enables the forwarding of DNS requests of free configurable domains to assigned DNS server.
DHCP	DHCP Client, Server, Proxy and Relay for siplified TCP/IP configuration
Packet size controling	Adaption of PMTU or automatic packet size controling via fragmentation
X.25 Enhanced	Optional: X.25 over ISDN, XOT, X.25 to TCP Gateway, X.25 PAD, TP0 Bridge

QoS

Feature	Description
Policy based Traffic Shapping	Dynamic bandwidth management via IP traffic shaping
Bandwidth reservation	Dynamic reservation of bandwidth, allocation of guaranteed and maximum bandwidths
DiffServ	Priority Queuing of packets on the basis of the DiffServ/TOS field
Layer2/3 tagging	Conversion of 802.1p layer 2 priorisation information to layer 3 diffserv attributes
TCP Download Rate Control	For reservation of bandwidth for VoIP connections

Redundancy / Loadbalancing

Feature	Description
BRRP	Bintec Router Redundancy Protocol for backup of several passive or active devices with free selectable priority
BoD	Bandwidth on Demand: dynamic bandwidth to suit data traffic load
Load Balancing	Static and dynamic load balancing to several WAN connections on IP layer
VPN backup	Simple VPN backup via different media. Additional enables the Funkwerk interface based VPN concept the application of routing protocols for VPN connections.

Layer 2 Functionality

Feature	Description
Bridging	Support of layer 2 bridging with the possibility of separation of network segment via the configuration of bridge groups
VLAN	Support of up to 32 VLAN (Virtual LAN) for segmentation of the network in independent virtual segments (workgroups)
Proxy ARP	Enables the router to answer ARP requests for hosts, which are accessible via the router. That enables the remote clients to use an IP address from the local net.

Logging / Monitoring / Reporting

Feature	Description
Internal system logging	Syslog storage in RAM, display via web-based configuration user interface (http/https), filter for subsystem, level, message
External system logging	Syslog, several syslog server with different syslog level configurable
E-Mail alert	Automatic E-Mail alert by definable events
SNMP traps	SNMP traps (v1, v2, v3) configurable
Activity Monitor	Sending of information to a PC on which Brickware is installed
IPSec monitoring	Display of IPSec tunnel and IPSec statistic; output via web-based configuration user interface (http/https)
Interfaces monitoring	Statistic information of all pysical and logical interfaces (ETH0, ETH1, SSIDx, ...), output via web-based configuration user interface (http/https)
ISDN monitoring	Display of active and past ISDN connections; output via web-based configuration user interface (http/https)
IP accounting	Detailed IP accounting, source, destination, port, interface and packet/bytes counter, transmission also via syslog protocol to syslog server
ISDN accounting	Detailed ongoing recording of ISDN connection parameter like calling number and charging information, transmission also via syslog protocol to syslog server
RADIUS accounting	RADIUS accounting for PPP, PPTP, PPPoE and ISDN dialup connections
Keep Alive Monitoring	Control of hosts/connections via ICMP polling
Tracing	Detailed traces can be done for different protocols e.g. ISDN, PPPoE, ... generation local on the device and remote via DIME manager
Tracing	Traces can be stored in PCAP format, so that import to different open source trace tools (e.g. wireshark) is possible.

Administration / Management

Feature	Description
RADIUS	Central check of access authorization at one or several RADIUS server, RADIUS (PPP, IPSec inclusive X-Auth and login authentication)
RADIUS dialout	On a RADIUS server configured PPP und IPSec connection can be loaded into the gateway (RADIUS dialout).
TACACS+	Support of TACACS+ server for login authentication and for shell comando authorization
Time synchronization	The device system time can be obtained via ISDN and from a SNTP server (up to 3 time server configurable). The obtained time can also be transmitted per SNTP to SNTP clients.
Automatic Time Settings	Time zone profiles are configurable. That enables an automatic change from summer to winter time.
Supported management systems	DIME Manager, XAdmin
Configurable scheduler	Configuring of time and event controlled tasks, e.g. reboot device, activate/deactivate interface, activate/deactivate WLAN, trigger SW update and configuration backup
Funkwerk Configuration Interface (FCI)	Integrated web server for web-based configuration via HTTP or HTTPS. This user interface is by most of Funkwerk EC products identical.
Software update	Software updates are free of charge; update via local files, HTTP, TFTP or via direct access to the FEC web server
Remote maintenance	Remote maintenance via telnet, SSL, SSH, HTTP, HTTPS and SNMP (V1,V2,V3)
Configuration via serial interface	Serial configuariton interface is available
ISDN remote maintenance	Remote maintenance via ISDN dial-in with checking of the calling number. The ISDN remote maintenance connection between two funkwerk devices can be encrypted.
ISDN remote maintenance	A transparent mode enables transmissions of configurations and software updates respectively
GSM remote maintenance	Remote maintenance via GSM login (external modem and cable required)
Device discovery function	Device discovery via SNMP multicast.
On The Fly configuration	No reboot after reconfiguration required
SNMP	SNMP (v1, v2, v3), USM model, VACM views, SNMP traps (v1, v2, v3) configurable, SNMP IP access list configurable
SNMP configuration	Complete management with MIB-II, MIB 802.11, Enterprise MIB
Configuration export and import	Load and save configurations, optional encrypted; optional automatic control via scheduler
SSH login	Supports SSH V1.5 and SSH V2.0 for secure connections of terminal applications
HP OpenView	Integration into Network Node Manager
XAdmin	Support of XAdmin roll out and configuration managemant tool for larger router installations (IP+ISDN+GSM)

Interfaces

Feature	Description
Ethernet	5 x 10/100/1000 Mbps Ethernet Twisted Pair, autosensing, Auto MDI/MDI-X, up to 4 ports can be switches as additional WAN ports incl. load balancing, all Ethernet ports can be configured as LAN or WAN.
Serial console	Serial console interface / COM port (mini USB): optional, connection of an analogue / GPRS modem is possible (supported modems: see www.funkwerk-ec.com)
ADSL/ADSL 2+	ADSL over ISDN (compatible to U-R2 connection of Deutsche Telekom)
ADSL/ADSL 2+	ADSL over POTS
ISDN Basic Rate (BRI)	4 x BRI (NT/TE), each 2 B channel, internal/external

Hardware Features

Feature	Description
19 inch	Mountable in 19 inch rack, incl. 19 inch rack mount kit
Realtime clock	System time persists even at power failure for some hours.
Environment	Temperature range: Operational 0°C to 40°C; storage -10°C to 70°C; Max. rel. humidity 10 - 95% (non condensing)
Power supply	Integrated wide range power supply 110-240V, with energy efficient swiching controller
Power consumption	Max. 24 Watt, typ. 15 Watt
housing	19 inch 1 high unit metal case, screw-on 19 inch mounting-angle, LEDs and network connectors at front side
Dimension	Ca. 485.6 mm x 220 mm x 45 mm (W x H x D)
Weight	Ca. 2600g
Fan	Fanless design therefor high MTBF
Reset button	Restart or reset to factory state possible
Standards and certifications	R&TTE directive 1999/5/EG; EN 55022; EN 55024 + EN 55024/A1; EN61000-3-2; EN 61000-3-3; EN 61000-4-4; EN 60950-1; EN 300 328

Content of Delivery

Feature	Description
Manual	Quick Installation Guide in German and English
DVD	DVD with system software, management software and documentation
Ethernet cable	1 Ethernet cable, 3m
Network cable	Power cable
Serial cable	Serial cable (mini USB - DSUB 9 female)
ADSL cable	ADSL cable (RJ45-RJ11), 2m
ADSL cable	ADSL cable (RJ45-RJ45), 2m
ISDN (BRI/S0) cable	ISDN (BRI/S0) cable, 3m

Service

Feature	Description
Warranty	2 year manufacturer warranty inclusive 24h advanced replacement
Software Update	Free-of-charge software updates for system software (BOSS) and management software (DIME manager)

Article number

Feature	Description
bintec RT3002; art. no. 5510000229	IP Access Media Gateway; 19 inch rack; incl. ADSL modem (Annex A+B); 4x ISDN BRI; 8x DSP; T.30/T.38 fax support; incl. 10 IPSec tunnels (opt. max. 110), certificates, HW encryption; 4+1 Gigabit Eth. switch; german and intern. version.
bintec RT3002 - UK; art. no. 5510000266	IP Access Media Gateway; 19 inch rack; incl. ADSL modem (Annex A+B); 4x ISDN BRI; 8x DSP; T.30/T.38 fax support; incl. 10 IPSec tunnels (opt. max. 110), certificates, HW encryption; 4+1 Gigabit Eth. switch; UK version.

Options

Feature	Description
VPN-IPSec-25	License for 25 additional activ IPSec tunnels; art. no. 5500000781
X.25	License for X.25 feature set; art. no. 5500000783
Cobion Content Filter Small	License for one year Cobion content filter (small); art. no. 80551
MPPC and Stac compression	Free-of-charge license for Stac and MPPC compression; registration under www.funkwerk-ec.com required
IP address ISDN B/D channel license	Free of charge license for IP address transmission in ISDN D or B channel for IPSec connections; registering under www.funkwerk-ec.com required.
Service package 'large'	Warranty extension of 3 years to a total of 5 years, including advanced replacement for FEC products of the category "large". (Please find a detailed description as well as an overview of the categories on www.funkwerk-ec.com/servicepackages.
Advanced Replacement	Optional (with costs) advanced replacement outside of warranty time